NELSON
NYGAARD

MEMORANDUM

To: Fern Nueno

From: Nelson\Nygaard

Date: September 20, 2013

Subject: Current & Future Parking Demand Analysis

This memorandum provides an additional analysis of existing parking conditions in the study area based upon data collected as part of the Walker study. More specifically, it analyzes existing parking demand in relation to target occupancies and quantifies how much the study area is "over" or "under" supplied. In addition, this memo analyzes parking demand in relation to existing land use and development patterns. This analysis will enable the City to demonstrate the effects of development on parking and determine whether the study area currently has more or less parking supply than future demand requires.

INVENTORY, OCCUPANCY, AND LEVEL OF SUPPLY

As discussed in the existing conditions memo, the peak hour of parking demand for the study area as a whole was at 10 a.m. for both Thursday and Saturday. However, on-street and off-street parking have different peak hours (7 p.m. vs. 10 a.m. on Thursday and both at 10 a.m. on Saturday). Furthermore, the four zones have different peak occupancy times from each other depending on the day and space type. Figure 1 and Figure 2 also show the parking data for the study area as a whole as well as for each zone.

As shown in Figure 1, Thursday occupancies for the study area as a whole and for each of the zones are well below target levels of demand and result in an "oversupply" of parking. For example, at peak occupancy on Thursday, 2,100 parking spaces in the study area were occupied (both on- and off-street). If one were to assume that this was meeting the target occupancy rate, then the study area would only require 2,420 spaces.[1] Current supply in the study area, however, is 3,465 spaces, which translates into a 43% "oversupply" of parking based on current demand. All zones and space types in the study area have an oversupply at their peak occupancy, however the degree to which each piece of the study area is oversupplied varies. In general, the oversupply of off-street parking is much greater than on-street parking, with the entire study area oversupplied by 31% for on-street and 66% for off-street parking. The Carnation zone has the lowest degree of on-street over supply (12%) while the other zones range between 32% and 36%. The Orchid zone has the lowest degree of off-street over supply (42%) and varies widely with the highest oversupply in the Goldenrod zone (92%)

On Saturday, combined on- and off-street parking for the study area has 40% oversupply, similar to Thursday. On-street parking is oversupplied to a smaller degree (25%) than off-street parking (70%) throughout the study area. The Jasmine zone has the lowest degree of oversupply for on-

[1] Based upon target occupancies of 85% on-street and 90% off-street.

and off-street parking combined with 21% oversupply. The most constrained parking segment is on-street parking in the Carnation zone, however it is still oversupplied by 18%.

In all, this analysis reinforces several key findings. At peak time, all zones and space types have an overall oversupply of parking (although certain individual blocks or lots may be near capacity), even if the on-street and off-street peaks occur concurrently. On-street parking in the Carnation zone is the only area where oversupply of parking drops below 20%, but still it is at least 12% above the necessary supply. This indicates that within the study area as a whole, as well as within each zone, there is no shortage of parking, but rather there is a need for parking management.

Figure 1 Occupancy, Inventory, and Level of Supply – Thursday

On-street Parking						
Peak Period	Area	Occupancy (a)	Necessary Supply (b) = (a / .85)	Existing Supply (c)	Over Supply (d) = (c-b)	% Over Supply (e) = (d / b)
7 PM	All on-street	1,323	1556	2,033	477	31%
1 PM / 7 PM	Carnation	254	299	334	35	12%
7 PM	Goldenrod	303	356	485	129	36%
7 PM	Jasmine	283	333	441	108	32%
7 PM	Orchid	483	568	773	205	36%
Off-street Parking						
Peak Period	Area	Occupancy (a)	Necessary Supply (b) = (a / .90)	Existing Supply (c)	Over Supply (d) = (c-b)	% Over Supply (e) = (d / b)
10 AM	All off-street	777	863	1,432	569	66%
1 PM	Carnation	220	244	372	128	52%
10 AM	Goldenrod	164	182	349	167	92%
7 PM	Jasmine	144	160	267	107	67%
10 AM	Orchid	273	303	444	141	46%
Total (sum of on-street peak and off-street peak)						
Area		Occupancy	Necessary Supply	Existing Supply	Over Supply	% Over Supply
All on and off-Street		2,100	2,420	3,465	1,045	43%
Carnation		474	543	706	163	30%
Goldenrod		467	539	834	295	55%
Jasmine		427	493	708	215	44%
Orchid		756	872	1,217	345	40%

Figure 2 Occupancy, Inventory, and Level of Supply – Saturday

On-street Parking						
Peak Period	Area	Occupancy	Necessary Supply	Existing Supply	Over Supply	% Over Supply
		(a)	(b) = (a / .85)	(c)	(d) = (c-b)	(e) = (d / b)
10 AM	All on-street	1,384	1628	2,033	405	25%
10 AM	Carnation	240	282	334	52	18%
1 PM	Goldenrod	333	392	485	93	24%
7 PM	Jasmine	313	368	441	73	20%
10 AM	Orchid	526	619	773	154	25%
Off-street Parking						
Peak Period	Area	Occupancy	Necessary Supply	Existing Supply	Over Supply	% Over Supply
		(a)	(b) = (a / .90)	(c)	(d) = (c-b)	(e) = (d / b)
10 AM	All off-street	759	843	1,432	589	70%
1 PM	Carnation	194	216	372	156	73%
10 AM	Goldenrod	149	166	349	183	111%
10 AM	Jasmine	194	216	267	51	24%
10 AM	Orchid	255	283	444	161	57%
Total (sum of on-street peak and off-street peak)						
Area		Occupancy	Necessary Supply	Existing Supply	Over Supply	% Over Supply
All on and off-Street		2,143	2,472	3,465	993	40%
Carnation		434	498	706	208	42%
Goldenrod		482	557	834	277	50%
Jasmine		507	584	708	124	21%
Orchid		781	902	1,217	315	35%

PEAK DEMAND

The peak occupancy for the entire study area occurred on Saturday at 10 a.m. Parking demand ratio calculations reveal two different, but equally useful correlations:

- *Built Stalls to Built Land Use Ratio*. This represents the total number of existing parking stalls correlated to total existing land use square footage (occupied or vacant) within the study area. According to data provided by the City, there is approximately 695,831 gross square feet (GSF) of land uses. At this time, about **4.08 parking stalls per 1,000 GSF** of built land use have been developed/provided within the study area (combining the on- and off-street parking supplies).
- *Combined Peak Demand to Occupied Land Use Ratio.* This represents peak hour occupancy within the commercial core combining the on and off-street supply. As such, actual parked vehicles were correlated with actual occupied building area (approximately 676,754 GSF). From this perspective, current peak hour demand stands at a ratio of approximately **2.24 occupied parking stalls per 1,000 GSF** of built land use.

Figure 3 summarizes the analysis used to determine the built *ratio* of parking to built land use (i.e., Column D), which is based on the correlation between total built land use of 695,831 GSF (Column A – Built) and 2,840 stalls of "built" parking supply (i.e., Column C). As such, the *built ratio of parking* is 4.08 stalls per 1,000 GSF of commercial/retail building area.

Figure 3 also demonstrates that the *actual demand* for parking is approximately 2.24 occupied stalls per 1,000 GSF (Column F) at peak hour (Saturday 10 a.m.). This number is derived by correlating actual occupied building area of 676,754 GSF (Column B) to the 1,518 vehicles actually parked in the peak hour (Column E).

Figure 3 Parking Demand in Study Area – Mixed Land Use to Built Supply

	A	B	C	D	E	F
Time Period	GSF (Built)	GSF (Occupied)	Total Supply Inventoried in Study Area*	Built Ratio of Parking (per 1,000 GSF)	Total Occupied Spaces*	Actual Ratio of Parking Demand (per 1,000 GSF)
Thursday, 10 AM	695,831	676,754	2,840	4.08	1,393	2.06
Thursday, 1 PM					1,391	2.06
Thursday, 7 PM					1,280	1.89
Saturday, 10 AM					1,518	2.24
Saturday, 1 PM					1,485	2.19
Saturday, 7 PM					1,258	1.86

*Note: In order to determine how many on-street parking spaces are typically occupied by residents (not associated with commercial parking demand), vehicle ownership data from the American Community Survey 5-year estimates (2007 – 2011) was consulted. Based on a City sample survey that there are on average 1.5 garage spaces per resident household and assumes 1.25 garage spaces per household being used to store cars (to account for the fact that some garage spaces may be used for storage) and 0.25 vehicles per household parked on-street. This number was subtracted both from the total supply and the total occupied spaces for the purpose of demand calculations.

To date, parking has been *built* at an average rate of 4.08 stalls per 1,000 GSF of development in The Corona del Mar study area. This rate is more than twice the actual rate of demand at peak period (2.24 per 1,000 GSF), indicating an excess of supply.

Figure 4 provides a summary of built supply to actual demand for other cities that the consultant team has worked with. In relation to the selected cities, Corona del Mar has a high built supply in relation to land use. At its peak, Corona del Mar has a much smaller demand ratio, resulting in a large gap between what the level of parking supplied and what is actually needed (1.83).

Figure 4 Built Parking Supply and Actual Peak Demand, Selected Cities

City	Minimum Requirement / 1,000 SF or Actual Built Supply	Actual Demand / 1,000 SF	Gap b/t parking built and actual parking demand (for every 1,000 GSF)
Hood River, OR	1.54	1.23	0.31
Oxnard, CA	1.70	0.98	0.72
Newport Beach, CA (Balboa Village)[2]	1.84	1.78	0.06
Corvallis, OR	2.00	1.50	0.50
Santa Monica, CA	2.06	1.57	0.49
Monterey, CA	2.14	1.20	0.94
Sacramento, CA	2.19	1.18	1.01
Seattle, WA (SLU)	2.50	1.75	0.75
Kirkland, WA	2.50	1.98	0.52
Palo Alto, CA	2.50	1.90	0.60
Ventura, CA (Westside)	2.87	1.26	1.61
Chico, CA	3.00	1.70	1.30
Hillsboro, OR	3.00	1.64	1.36
Bend, OR	3.00	1.80	1.20
Salem, OR	3.15	2.04	1.11
Lancaster, CA	3.67	1.37	2.30
Newport Beach, CA (Corona del Mar)	4.08	2.24	1.84
Redmond, WA	4.10	2.71	1.39
Beaverton, OR	4.15	1.85	2.30
Soledad, CA	4.21	1.21	3.00

FUTURE DEMAND

New Commercial Construction

Based on future land use information provided by the City of Newport Beach, it was determined that in the future an additional 63,883 square feet could be built in the study area based on the

[2] Reflects peak parking demand during the summer months, which is achieved on approximately 30-35 days per year.

maximum floor area allowed per lot. In order to determine the future demand generated, the peak demand rate (2.24 parking spaces per 1,000 GSF) was applied to the new built square feet, resulting in a projected additional 143 vehicles at peak time. Given that the existing oversupply of parking within the study area is 1,045 on Thursdays and 993 on Saturdays, it is projected that there is more than enough existing parking to accommodate future commercial growth.

Figure 5 Future Demand Calculation

A	B	C
New Built Square Feet (provided by City)	Peak Parking Demand Rate (Occupants per 1,000 GSF)	Additional Future Parking Occupants (c) = a * (b / 1,000)
63,883	2.24	143

New Residential Construction

Currently, there are 15 parking lots in the study area that are zoned for residential use. Based on the parcel zoning, it is possible that in the future those parcels could be redeveloped as one or two unit residential properties, thus reducing the total off-street parking supply. In total, up to 344 spaces in off-street lots could be removed due to residential development. Under future conditions, in which the maximum amount of commercial growth has occurred (causing an increase in demand of 143 vehicles), and all off-street lots with residential zoning have been redeveloped to eliminate 344 parking spaces, at peak occupancy there would still be 527 spaces of oversupply on Thursdays and 485 spaces of oversupply on Saturdays, as shown in Figure 6. Figure 7 shows off-street lots that are sited on residential zoned parcels.

Figure 6 Future Over Supply

Day	Existing Over Supply (peak time)	Reduction due to Increased Demand	Reduction due to off-street lot removal	Future Over Supply
Thursday	1,045	174	334	568
Saturday	993	174	334	516

Figure 7 Parking Lots on Residential Zoned Parcels